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EXAMINER
WEST, THOMAS C

ART UNIT	PAPER NUMBER
3621	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	**Applicant(s)**
Office Action Summary	10/612,375	EISEN, ORI
	Examiner	**Art Unit**	
	THOMAS WEST	3621	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>17 December 2010</u>.

2a)☐ This action is **FINAL.** 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-23</u> is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-23</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Status of Claims

1.   A request for continued examination under 37 CFR 1.114, including the fee set

forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this

application is eligible for continued examination under 37 CFR 1.114, and the fee set

forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action

has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on

December 17, 2010 has been entered.

2.   Claims 1-23 are currently pending and have been examined.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 1-3, 7, 8, 10, 11, 15, and 21 are rejected under U.S.C. 103(a) as being

unpatentable over Kermani, U.S. Patent No. 6,895,514, in view of Young, U.S. Patent

No. 4805222.

Claims 1, 8, 10, 15, 21:

Kermani, as shown, discloses the following limitations:

- providing instructions stored on a memory for assigning a score to a first of said keystrokes [[K1]]k_1 (see at least column 5, lines 37-41);

- providing instructions stored on a memory for assigning a score to succeeding keystrokes after [[K1]]k_1

- providing instructions stored on a memory for summing at least three of the scores of the keystrokes in the string to obtain a string score (see at least column 4, lines 35-38);

- providing instructions stored on a memory for dividing the string score by the number of keystrokes used to determine the sum to obtain a normalized string score and (see at least column 4, lines 35-38);

- providing instructions stored on a memory for comparing the normalized string score to a predetermined value of normalized string scores to determine the likelihood that the keystroke entries are accurate, wherein the predetermined value is not based on a previously stored keystroke sequence. (see at least column 2, lines 29-32).

- whether the keystroke entries were entered without regard to their meaning (col. 1, lines 36-43 random search techniques, sequence of characters)

    Kermani teaches random search techniques and a sequence of characters while describing keystroke analysis. Both of the above

descriptions regarding keyboard input involving username and password

disclose that they are a sequence of characters and that random search

techniques can be used to determine such. Therefore it would have been

obvious to one of ordinary skill in the art at the time of the invention to

design a keystroke analysis system without regard to any meaning

associated with the keystrokes.

Claim 8:

Kermani, as shown, discloses the following limitations:

- further including calculating the normalized string scores for a plurality of
  strings, summing the normalized string scores to obtain a transactional
  score, and dividing the transactional score by the number of strings in the
  sum to obtain a normalized transactional score and determining accuracy
  based upon the value of the normalized transactional score in comparison
  to a predetermined value of normalized transactional scores (see at least
  column 4, lines 35-38).

Claim 10:

Kermani, as shown, discloses the following limitations:

- a processor (see at least column 4, lines 6-17);
- a memory coupled to said processor, said memory storing keystroke fraud
  instructions adapted to be executed by said processor to assign a score to
  a keystroke Km based upon the time independent location of the

keystroke in relation to another keystroke Kn, t without regard to an amount of time associated with entering the keystrokes to sum the scores of the keystrokes in a string entered on the keyboard to obtain a string score and to divide the sum of the keystroke scores by the number of keystrokes in the string to obtain a normalized string score and a means for comparing said normalized string score to a predetermined score to determine the accuracy of said keystroke entries (see at least column 4, lines 6-17).

Claim 15:

Kermani, as shown, discloses the following limitations:

- assigning a score to a keystroke k_m based upon the time independent location of the keystroke from another keystroke k_n without regard to an amount of time associated with entering the keystrokes (see at least column 5, lines 62-67);

- summing the scores of at least three of the keystrokes in the string to obtain a string score (see at least column 4, lines 35-38);

- dividing the sum of the keystroke scores by the number of keystrokes in the sum to obtain a normalized string score and comparing the same to a predetermined score to determine the probable accuracy of entered keystrokes (see at least column 4, lines 35-38 and column 2, lines 29-32).

Claim 21:

Kermani, as shown, discloses the following limitations:

- means for assigning a score to a keystroke k_m based upon the time independent location of the keystroke in relation to another keystroke k_n without regard to an amount of time associated with entering the keystrokes (see at least column 5, lines 62-67);

- means for summing the scores of the keystrokes in a string to obtain a string score (see at least column 4, lines 35-38);

means for dividing the sum of the keystroke scores by the number of keystrokes in the sum to obtain a normalized string score and comparing the same to a predetermined value indicative of possible fraud or error (see at least column 4, lines 35-38 and column 2, lines 16-22).

Regarding claims 1, 8, 10, 15, 21, Kermani discloses the limitations as shown above. Kermani does not disclose the following limitation, but Young does:

- based upon the number of keyspaces between the keys corresponding to the keystroke and another keystroke (12:38-67, 13:1-67, 14: 1-67);

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kermani to include the key spacing of Young since this allows for measuring spacing between keys as another factor which ultimately aids in identifying the user.

Claim 2:

Kermani, as shown, discloses the following limitations:

- the keystroke [[K2]]k_2 is immediately after the keystroke [[K1]]k_1 and each succeeding keystroke is provided with a score based upon its location from a preceding keystroke (see at least column 5, lines 62-67).

Claim 3:

Kermani, as shown, discloses the following limitations:

- each keystroke's score after k_1 is based on its location in relation to the immediately preceding keystroke (see at least column 5, lines 62-67).

Claim 7:

Kermani, as shown, discloses the following limitations:

- further comprising making a preliminary determination of a risk of fraud or error based upon the comparative value of the normalized string score to said predetermined value of normalized string scores (see at least column 2, lines 16-22).

Claim 11:

Kermani, as shown, discloses the following limitations:

- keystroke fraud instructions are further adapted to be executed by said processor to store in said memory an indication of the absence of

accuracy associated with said string based upon said normalized string

score in comparison to a range of said predetermined scores (see at least

column 8, lines 17-21).

5.   Claims 4-6, 9, 16, 17, 20, and 23 are rejected under U.S.C. 103(a) as being

unpatentable over Kermani, U.S. Patent No. 6,895,514 in view of Young, U.S. Patent

No. 4805222, in view of Brown, US Patent No. 5,557,686.

Claim 4:

Kermani discloses the limitations as shown above. Kermani does not disclose the

following limitation, but Brown does:

- there is at least two intervening keystrokes between keystrokes [[K1]]k_1

  and [[KN]]k_n (see at least column 5, lines 28-30 and column 5, lines 57-

  61).

  It would have been obvious to one of ordinary skill in the art at the time of the

  invention to modify Kermani to include the keystroke method of Brown since this

  allows for measuring timing between keystrokes, which ultimately aids in

  identifying the user.

Claims 5, 6, 9, 16, 17:

Kermani, discloses a keystroke score (col. 5, lines 62-67). Kermani does not

disclose a whole number, linear location, and enhanced value, but Brown does:

- the score of keystroke $k_2 \ldots k_n$ is an whole number plus the least number of adjacent key spaces between keystrokes $k_1 \ldots k_{n-1}$ (see at least column 5, lines 28-38 and column 5, lines 59-61, fig. 10).

- wherein the score of keystroke K2 is based upon the linear distance between keystrokes K1 and K2 (see at least column 5, lines 28-30 and column 5, lines 59-61).

- further including adding an enhanced value to the score of a keystroke if the keystroke is shifted (see at least column 7, lines 11-17).

- the score of keystroke k_m is a whole number plus the least number of adjacent keys spaces between keystrokes k_m and k_n (see at least column 5, lines 59-61).

- the score of keystroke k_m is based upon the linear distance between keystrokes k_m and k_n (see at least column 5, lines 28-32).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kermani to include the keystroke method of Brown since this allows for measuring timing between keystrokes, which ultimately aids in identifying the user.

Claim 20:

Kermani, discloses the limitations as shown above. Kermani does not disclose the following limitation, but Brown does:

- instructions are further adapted to be executed by said processor to
  perform the method including adding an enhanced value to the score of
  keystroke k_m, if keystroke k_m is shifted (see at least column 7, lines 11-17).

  It would have been obvious to one of ordinary skill in the art at the time of
the invention to modify Kermani to include the keystroke method of Brown since
this allows for measuring keystroke timing, which ultimately aids in identifying the
user.

Claim 23:

Kermani discloses the limitations as shown above. Kermani does not disclose
the following limitation, but Brown does:

- means for determining if a keystroke is shifted, and adding an enhanced
  value to the score of the keystroke if the keystroke is shifted (see at least
  column 7, lines 11-17).

  It would have been obvious to one of ordinary skill in the art at the time of the
invention to modify Kermani to include the keystroke method of Brown since this
allows for measuring keystroke timing, which ultimately aids in identifying the
user.

6.   Claims 12-14, 18, 19, and 22 are rejected under U.S.C. 103(a) as being
unpatentable over Kermani, U.S. Patent No. 6,895,514 in view of Young, U.S. Patent
No. 4805222 and in further view of Kroll, U.S. Patent No. 6,405,922.

Claim 12:

Kermani disclose the limitations as shown above. Kermani do not disclose the

following limitation, but Kroll does:

- keystroke fraud instructions are further adapted to be executed by said

    processor to calculate the accuracy of an online transaction entered by

    keystroke entries on a keyboard comprising summing the normalized

    string scores for a plurality of strings to obtain a transactional score, and

    dividing the sum of the normalized string scores by the number of strings

    in the sum to obtain a normalized transactional score, whereby the

    normalized transactional score is compared to a predetermined score to

    determine the accuracy of the online transaction (see at least column 4,

    lines 47-48)

It would have been obvious to one of ordinary skill in the art at the time of the

invention to modify Kermani to include the keystroke method of Kroll since this

further allows for measuring keystroke timing, which ultimately aids in identifying

fraudulent users.

Claim 13:

Kermani disclose the limitations as shown above. Kermani do not disclose the

following limitation, but Kroll does:

- keystroke fraud instructions are further adapted to be executed by said

    processor to store in said memory an indication of the absence of

accuracy based upon said normalized transactional score (see at least

column 4, lines 47-48).

It would have been obvious to one of ordinary skill in the art at the time of the

invention to modify Kermani to include the keystroke method of Kroll since this

further allows for measuring keystroke timing, which ultimately aids in identifying

fraudulent users.

Claim 14:

Kermani disclose the limitations as shown above. Kermanido not disclose the

following limitation, but Kroll does:

- keystroke fraud instructions are further adapted to be executed by said

  processor to add an enhanced value to the score of certain of said

  keystrokes if said keystrokes are shifted (see at least column 4, lines 47-

  48).

It would have been obvious to one of ordinary skill in the art at the time of the

invention to modify Kermani to include the keystroke method of Kroll since this

further allows for measuring keystroke timing, which ultimately aids in identifying

fraudulent users.

Claim 18:

Kermani disclose the limitations as shown above. Kermani does not disclose the

following limitation, but Kroll does:

- instructions are further adapted to be executed by said processor to perform the method including calculating the normalized string scores for a plurality of strings, summing the normalized string scores to obtain a transactional score, and dividing the sum of the normalized string scores by the number of strings in the sum to obtain a normalized transaction score and comparing the same to a predetermined score to determine the probability of error or fraud in said keystroke entries in said online transaction (see at least column 4, lines 47-55).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kermanito include the keystroke method of Kroll since this further allows for measuring keystroke timing, which ultimately aids in identifying fraudulent users.

Claim 19:

Kermani disclose the limitations as shown above. Kermani does not disclose the following limitation, but Kroll does:

- instructions are further adapted to be executed by said processor to perform the method including determining a risk of fraud or error based upon the value of the normalized transactional score in comparison to one or more predetermined scores (see at least column 4, lines 47-55).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kermanito include the keystroke method of Kroll since this

further allows for measuring keystroke timing, which ultimately aids in identifying

fraudulent users.

Claim 22:

Kermanidisclose the limitations as shown above. Kermani further discloses the

following limitation:

- means for calculating the normalized string scores for a plurality of strings
  (see at least column 4, lines 35-38);

Kermanidisclose the limitations as shown above. Kermanido not disclose the

following limitation, but Kroll does:

- means for summing the normalized string scores to obtain a transactional
  score (see at least column 4, lines 47-48);
- means for dividing the sum of the normalized string scores by the number
  of strings in the sum to obtain a normalized transactional score and
  comparing the same to a predetermined score indicative of possible fraud
  or error (see at least column 4, lines 47-48).

It would have been obvious to one of ordinary skill in the art at the time of the

invention to modify Kermanito include the keystroke method of Kroll since this

further allows for measuring keystroke timing, which ultimately aids in identifying

fraudulent users.

Response to Arguments

7.   Applicant's arguments filed December 17, 2010 have been fully considered but they are not persuasive. Applicant's arguments will be addressed in sequential order as they were set forth in the "Remarks" section on the above date. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See In re Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); In re Merck & Co., 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant argues that the cited references do not disclose "assigning a score to succeeding keystrokes after k_1 based upon the number of keyspaces between the keys corresponding to the keystroke and to another keystroke;" Young discloses, "a vector of n features that is a point in n-dimensional space" (space)…"the plurality of extracted features" (number of keyspaces between the keys), having n features, represents a vector with n features which is another point in the same n-dimensional space" (corresponding to the keystroke and to another keystroke),…" This analysis will produce a single number (score) which can be compared to predefined threshold values. (13:28-42), clearly meeting the claim language. The above is in reference to Young figures 8 and 10 and surrounding text; "The comparison determines the correlation between the template and the plurality of extracted features (or second plurality of features), which correlation is a measure of the relationship between the two typing samples (representing the first set of keystrokes and the second set of keystrokes)" (12:38-67,

13:1-67, 14: 1-67); clearly discussing keystrokes.

Conclusion

8.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas West whose telephone number is 571-270-1236. The examiner can normally be reached on Tuesday and Wednesday 7:30am - 5pm EST.

        If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Fischer can be reached on 571-272-6779. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

        Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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